

Title (en)

METHOD OF MAKING A LAMINATE, AN ENERGY ABSORBING DEVICE, AN ENERGY ABSORBING DEVICE COMPOSITION, AND A FORMING TOOL

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES LAMINATS, ENERGIEABSORBIERENDE VORRICHTUNG UND ZUSAMMENSETZUNG EINER ENERGIEABSORBIERENDEN VORRICHTUNG SOWIE FORMWERKZEUG

Title (fr)

PROCÉDÉ DE FABRICATION D'UN STRATIFIÉ, DISPOSITIF D'ABSORPTION D'ÉNERGIE, COMPOSITION POUR DISPOSITIF D'ABSORPTION D'ÉNERGIE ET OUTIL DE FORME

Publication

**EP 3154828 B1 20200115 (EN)**

Application

**EP 15735738 A 20150615**

Priority

- IN 1618DE2014 A 20140616
- US 201462012522 P 20140616
- US 201462012515 P 20140616
- IB 2015054518 W 20150615

Abstract (en)

[origin: WO2015193795A1] In an embodiment, an energy-absorbing device can comprise: a polymer reinforcement structure, wherein the polymer reinforcement structure comprises a polymer matrix and chopped fibers; and a shell comprising 2 walls extending from a back and forming a shell channel, wherein the shell comprises continuous fibers and a resin matrix; wherein the polymer reinforcement structure is located in the shell channel.

IPC 8 full level

**B60R 21/04** (2006.01)

CPC (source: CN EP KR US)

**B29C 45/0005** (2013.01 - CN); **B29C 45/14** (2013.01 - CN); **B29C 45/14786** (2013.01 - EP US); **B29C 45/14811** (2013.01 - EP US);  
**B29C 70/465** (2013.01 - EP US); **B29C 70/506** (2013.01 - EP US); **B32B 3/04** (2013.01 - US); **B32B 3/12** (2013.01 - US);  
**B32B 3/28** (2013.01 - US); **B32B 5/02** (2013.01 - US); **B32B 27/08** (2013.01 - US); **B32B 27/12** (2013.01 - KR); **B32B 37/04** (2013.01 - CN);  
**B32B 37/06** (2013.01 - CN US); **B32B 37/10** (2013.01 - US); **B32B 37/1009** (2013.01 - CN); **B32B 38/004** (2013.01 - KR);  
**B32B 38/164** (2013.01 - KR); **B32B 38/18** (2013.01 - CN); **B32B 38/1808** (2013.01 - US); **B32B 38/1858** (2013.01 - US);  
**B60R 21/04** (2013.01 - CN EP KR US); **B60R 21/055** (2013.01 - KR); **B62D 29/043** (2013.01 - US); **B62D 63/04** (2013.01 - US);  
**B32B 2250/24** (2013.01 - US); **B32B 2260/021** (2013.01 - US); **B32B 2260/046** (2013.01 - US); **B32B 2305/076** (2013.01 - US);  
**B32B 2305/10** (2013.01 - US); **B32B 2307/56** (2013.01 - US); **B32B 2605/08** (2013.01 - US); **B60R 2021/0018** (2013.01 - KR);  
**B60R 2021/0414** (2013.01 - KR); **B60R 2021/0421** (2013.01 - KR)

Cited by

DE102021108564A1; WO2021259971A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

**WO 2015193795 A1 20151223**; CN 106458131 A 20170222; CN 109131190 A 20190104; CN 109131190 B 20220812;  
EP 3154828 A1 20170419; EP 3154828 B1 20200115; EP 3513958 A2 20190724; EP 3513958 A3 20191023; KR 102191809 B1 20201217;  
KR 102452591 B1 20221007; KR 20170018917 A 20170220; KR 20200141097 A 20201217; US 11603142 B2 20230314;  
US 2017158252 A1 20170608; US 2023192197 A1 20230622

DOCDB simple family (application)

**IB 2015054518 W 20150615**; CN 201580025480 A 20150615; CN 201810988593 A 20150615; EP 15735738 A 20150615;  
EP 19155120 A 20150615; KR 20177000997 A 20150615; KR 20207035425 A 20150615; US 201515319571 A 20150615;  
US 202318163032 A 20230201